METHOD OF POROGEN REMOVAL FROM POROUS LOW-K FILMS USING UV RADIATION

ABSTRACT

Methods of preparing a porous low-k dielectric material on a substrate are provided. The methods involve the use of ultraviolet radiation to react with and remove porogen from a porogen containing precursor film, leaving a porous low-k dielectric matrix. Methods using oxidative conditions and non-oxidative conditions are described. The methods described may be used to remove porogen from porogen-containing precursor films. The porogen may be a hydrocarbon such as a terpene (*e.g.*,alpha-terpinene) or a norbornene (*e.g.*, ENB). The resulting porous low-k dielectric matrix can then be annealed to remove water and remaining silanols capped to protect it from degradation by ambient conditions, which methods will also be described.